

Amendments to the Claims

Please amend the claims as shown below in the complete listing of claims.

1. (Previously Presented) An automated manufacturing line for making a composite article from first and second thermoformed workpieces by automatically assembling the first thermoformed workpiece to the second thermoformed workpiece, comprising:
 - 5 a thermoforming station for thermoforming the first and second thermoformed workpieces in a plastic sheet;
 - a trim station for trimming at least the first thermoformed workpiece from the plastic sheet; and
 - an assembly station for assembling the trimmed first thermoformed workpiece
10 onto the second thermoformed workpiece to form the composite article.
2. (Previously Presented) The automated manufacturing line according to claim 1 wherein the assembly station assembles the trimmed first thermoformed workpiece to the second thermoformed workpiece by press-fitting the first and second thermoformed workpieces.
3. (Previously Presented) The automated manufacturing line according to claim 2 wherein the press-fitting of the trimmed first thermoformed workpiece and the second thermoformed workpiece is a snap-fit.
4. (Previously Presented) The automated manufacturing line according to claim 1 wherein the assembly station assembles the trimmed first thermoformed workpiece to the second thermoformed workpiece by an adhesive coupling.
5. (Previously Presented) The automated manufacturing line according to claim 1 wherein the assembly station assembles the trimmed first thermoformed workpiece to the second thermoformed workpiece by an ultrasonic weld.
6. (Previously Presented) The automated manufacturing line according to claim 1 wherein the assembly station comprises a carrier moveable between a first position, where it

picks the trimmed first thermoformed workpiece, and a second position, where it assembles the trimmed first thermoformed workpiece to the second thermoformed workpiece.

7. (Previously Presented) The automated manufacturing line according to claim 6 wherein the carrier comprises a suction device to pick the trimmed first thermoformed workpiece as it is trimmed from the sheet and hold the trimmed first thermoformed workpiece as it is carried to the second thermoformed workpiece.

8. (Previously Presented) The automated manufacturing line according to claim 7 wherein the carrier comprises a force reliever to control the amount of force applied by the carrier to the trimmed first thermoformed workpiece and the second thermoformed workpiece as they are assembled.

9. (Original) The automated manufacturing line according to claim 8 wherein the carrier comprises a reciprocating arm on an end of which the suction device is mounted.

10. (Original) The automated manufacturing line according to claim 9 wherein the force reliever mounts the suction device to the end of the arm.

11. (Original) The automated manufacturing line according to claim 9 wherein the reciprocating arm reciprocates between a pick-up position that corresponds to the first position, and an assembly position that corresponds to the second position.

12. (Original) The automated manufacturing line according to claim 11 wherein the reciprocating arm reciprocates between the pick-up and assembly positions in a direction that is either parallel or transverse to the machine direction as defined by the movement of the plastic sheet through the assembly station.

13. (Original) The automated manufacturing line according to claim 11 wherein the trim station comprises a first punch and die set for trimming the first thermoformed workpiece from the plastic sheet.

14. (Previously Presented) The automated manufacturing line according to claim 13 wherein the die comprises an inlet opening in which the punch is received to trim the first

thermoformed workpiece from the plastic sheet when the plastic sheet is positioned between the punch and die, and an outlet opening into which the reciprocating arm extends to pick up the
5 trimmed first thermoformed workpiece when the reciprocating arm is in the pick-up position.

15. (Original) The automated manufacturing line according to claim 14 wherein the assembly station further comprises a moveable platform carrying the reciprocating arm and which is moveable between a first position where the reciprocating arm is positioned within the die outlet, and a second position where the reciprocating arm is positioned outside of the die
5 outlet.

16. (Previously Presented) The automated manufacturing line according to claim 15 wherein there are multiple reciprocating arms, with at least one of the arms at the pick-up position when another of the arms is at the assembly position providing for the contemporaneous pick-up of a trimmed first thermoformed workpiece while a previously pick-up trimmed first
5 thermoformed workpiece is being assembled to the second thermoformed workpiece.

17. (Original) The automated manufacturing line according to claim 16 wherein the trim station further comprises a second punch and die set for trimming the assembled first and second thermoformed workpieces from the plastic sheet.

18. (Original) The automated manufacturing line according to claim 6 wherein there are multiple carriers.

19. (Previously Presented) The automated manufacturing line according to claim 18 wherein the multiple carriers are arranged in at least two sets, wherein when one of the at least two sets is in the first position, the other of the at least two sets is in the second position providing for the contemporaneous pick-up of a first trimmed thermoformed workpiece while a
5 previously pick-up trimmed first thermoformed workpiece is being assembled to the second thermoformed workpiece.

20. (Original) The automated manufacturing line according to claim 6 wherein the movement of the carriers between the first and second positions is either generally parallel or

transverse to the machine direction as defined by the movement of the plastic sheet through the assembly station.

21. (Original) The automated manufacturing line according to claim 6 wherein the trim station comprises a first punch and die set for trimming the first thermoformed workpiece from the plastic sheet.

22. (Previously Presented) The automated manufacturing line according to claim 21 wherein the die comprises an inlet opening in which the punch is received to trim the first thermoformed workpiece from the plastic sheet when the plastic sheet is positioned between the punch and die, and an outlet opening into which the carrier extends to pick up the trimmed first
5 thermoformed workpiece.

23. (Original) The automated manufacturing line according to claim 21 wherein the trim station further comprises a second punch and die set for trimming the assembled first and second thermoformed workpieces from the plastic sheet.

24. (Previously Presented) The automated manufacturing line according to claim 1 wherein the assembly station moves the trimmed first thermoformed workpiece directly from the trim station onto the second thermoformed workpiece eliminating the need to temporarily store the trimmed first thermoformed workpiece prior to assembly to the second thermoformed
5 workpiece.

25. (Previously Presented) An apparatus for automatically forming a composite article by assembling first and second workpieces thermoformed in a common plastic sheet comprising a plurality of the first and second workpieces, the apparatus comprising:

a trimmer for trimming at least one of the first workpieces from the plastic sheet;
5 and

a carrier moveable between a first position, where the carrier picks up one of the trimmed first workpieces, and a second position, where the carrier assembles the trimmed first workpiece to one of the second workpieces in the plastic sheet.

26. (Previously Presented) The apparatus according to claim 25 wherein the carrier moves directly between the first and second positions eliminating the need to temporarily store the trimmed first workpiece prior to assembly to the one of the second workpieces.

27. (Previously Presented) The apparatus according to claim 26 wherein the carrier assembles the trimmed first workpiece to the one of the second workpieces by a press-fit coupling.

28. (Previously Presented) The apparatus according to claim 27 wherein the carrier comprises a suction device to pick the first workpiece as it is trimmed from the sheet and to hold the trimmed first workpiece as it is assembled to the second workpiece.

29. (Previously Presented) The apparatus according to claim 28 wherein the carrier comprises a force reliever to control the amount of force applied by the carrier to the second workpiece during the assembly of the trimmed first workpiece to the second workpiece.

30. (Original) The apparatus according to claim 29 wherein the carrier comprises a reciprocating arm on an end of which the suction device is mounted.

31. (Original) The apparatus according to claim 30 wherein the force reliever mounts the suction device to the end of the arm.

32. (Original) The apparatus according to claim 31 wherein the reciprocating arm reciprocates between a pick-up position that corresponds to the first position, and an assembly position that corresponds to the second position.

33. (Previously Presented) The apparatus according to claim 32 wherein the reciprocating arm reciprocates between the pick-up and assembly positions in a direction that is either parallel or transverse to the machine direction as defined by the movement of the plastic sheet through the apparatus.

34. (Original) The apparatus according to claim 33 wherein the trimmer comprises a first punch and die set for trimming the first workpiece from the plastic sheet.

35. (Previously Presented) The apparatus according to claim 34 wherein the die comprises an inlet opening in which the punch is received to trim the first workpiece from the plastic sheet when the plastic sheet is positioned between the punch and die, and an outlet opening into which the reciprocating arm extends to pick up the trimmed first workpiece when
5 the reciprocating arm is in the pick-up position.

36. (Previously Presented) The apparatus according to claim 35 wherein the carrier further comprises a moveable platform carrying the reciprocating arm and which is moveable between a first position where the reciprocating arm is positioned within the die outlet, and a second position where the reciprocating arm is positioned outside of the die outlet.

37. (Original) The apparatus according to claim 36 wherein there are multiple reciprocating arms, with at least one of the arms at the pick-up position when another of the arms is at the assembly position.

38. (Original) The apparatus according to claim 37 and further comprising a second trimmer having a second punch and die set for trimming the assembled first and second workpieces from the plastic sheet.

39. (Previously Presented) The apparatus according to claim 25 wherein there are multiple carriers, with each carrier picking up a different trimmed first workpiece in the first position and assembling it to a different second workpiece.

40. (Previously Presented) The apparatus according to claim 25 wherein the carrier assembles the trimmed first workpiece to the second workpiece by a press-fit coupling.

41. (Original) The apparatus according to claim 40 wherein the press-fit coupling is a snap-fit coupling.

42. (Previously Presented) The apparatus according to claim 25 wherein the carrier assembles the trimmed first workpiece to the second workpiece by an adhesive coupling.

43. (Previously Presented) The apparatus according to claim 25 wherein the carrier assembles the trimmed first workpiece to the second workpiece by an ultrasonic weld.

44-81. (Canceled)

82. (Previously Presented) The automated manufacturing line according to claim 1 wherein the plastic sheet comprises alternating one of rows and columns of the first thermoformed workpieces and the second thermoformed workpieces.

83. (Previously Presented) The automated manufacturing line according to claim 82 wherein the assembly station comprises a carrier moveable relative to the alternating one of rows and columns between a first position, where it picks the trimmed first thermoformed workpiece, and a second position, where it assembles the trimmed first thermoformed workpiece to the second thermoformed workpiece.

84. (Previously Presented) The apparatus according to claim 25 wherein the plastic sheet comprises alternating one of rows and columns of the first workpieces and the second workpieces.

85. (Previously Presented) The apparatus according to claim 84 wherein the carrier is moveable relative to the alternating one of rows and columns between the first and second positions.

86. (New) The automated manufacturing line according to claim 1 wherein the sheet comprises a portion of a web of plastic.

87. (New) The automated manufacturing line according to claim 1 wherein the sheet comprises opposing front and rear sides, and the trim station trims the first thermoformed

workpiece from the front side, and the assembly station assembles the trimmed thermoformed workpiece onto the second thermoformed workpiece on the front side.

88. (New) The apparatus according to claim 25 wherein the sheet comprises a portion of a web of plastic.

89. (New) The apparatus according to claim 25 wherein the sheet comprises opposing front and rear sides, and the trimmer trims the first thermoformed workpiece from the front side, and the carrier picks up the one of the trimmed first workpieces from the front side and assembles the one of the trimmed first workpieces to the one of the second workpieces on the front side.